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# INVESTIGATION OF THE PREPAREDNESS PROGRAM

## ELEVENTH REPORT

OF THE

## PREPAREDNESS INVESTIGATING SUBCOMMITTEE

OF THE

## COMMITTEE ON ARMED SERVICES

UNITED STATES SENATE

UNDER AUTHORITY OF

S. Res. 48

(85th Cong., 1st sess.)

NICKEL

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## LETTER OF SUBMITTAL

UNITED STATES SENATE,
PREPAREDNESS INVESTIGATING SUBCOMMITTEE,
*May 13, 1957.*

Hon. RICHARD B. RUSSELL,
*Chairman, Committee on Armed Services,*
*United States Senate.*

MY DEAR MR. CHAIRMAN: The Preparedness Investigating Subcommittee submits herewith a report under authority of Senate Resolution 48 of the 85th Congress, 1st session, which includes, among other things, authorization to examine, investigate, and make a complete study of any and all matters pertaining to strategic and critical materials necessary for the common defense.

This report deals with the subject of nickel, a strategic and critical material of the greatest significance. It brings up to date a continuing study of the major factors and developments in the nickel program since the report by the Preparedness Subcommittee on Nickel, dated January 8, 1951.

Numerous other inquiries and investigations are being conducted by the subcommittee, the results of which will be transmitted to you as rapidly as they are completed.

Respectfully,

LYNDON B. JOHNSON,
*Chairman, Preparedness Investigating Subcommittee.*

# LETTER OF SUBMITTAL.

# CONTENTS


| | Page |
|---|---|
| I. Introduction | 1 |
| II. The vital nature of nickel in the preparedness program | 2 |
| III. Production | 3 |
| A. Free-world expansion of productive capacity | 3 |
| B. Inco | 4 |
| C. Falconbridge | 4 |
| D. Sherritt Gordon | 5 |
| E. Government nickel plant, Cuban Nickel Co., Nicaro, Cuba (Nicaro) | 6 |
| F. Domestic sources | 7 |
| G. Additional phases of the nickel-expansion program | 7 |
| IV. United States consumption of nickel | 8 |
| A. Total consumption 1950–55 | 8 |
| B. Nickel shortage 1950 | 9 |
| C. Government controls | 9 |
| D. United States imports of nickel 1950–55 | 10 |
| E. United States exports of nickel 1950–55 | 10 |
| F. Development of the current nickel shortage | 11 |
| V. Removal of controls | 12 |
| A. Extent of nickel decontrol | 12 |
| B. Justification for removal of controls | 13 |
| C. The nickel market after decontrol | 15 |
| VI. Allocation of nickel by the International Nickel Co. (Inco) | 16 |
| VII. Prices | 17 |
| A. Black market | 17 |
| B. Gray market | 18 |
| C. Government premium price nickel | 18 |
| D. Inco price | 18 |
| VIII. Diversions of nickel from delivery to the stockpile | 20 |
| IX. Defense disparity | 22 |
| A. The role of the Department of Defense in the priorities and allocations program | 22 |
| B. Possible causes of the defense disparity: Limitations on the Department of Defense | 24 |
| C. Failure of the Government to resolve disparity is not due to lack of authority | 27 |
| X. Summary and conclusions | 28 |
| XI. Recommendations | 29 |


## APPENDIXES


| Appendix | |
|---|---|
| A. Federal laws and regulations relating to stockpile and expansion programs | 31 |
| B. Request for Inco nickel supply | 32 |
| C. Letter to Senator Johnson from R. C. Lanphier, Jr., Deputy Assistant Secretary of Defense (Supply and Logistics), dated January 14, 1957 | 33 |
| D. Excerpts from comments on the nickel report from counsel for ODM to staff members of the subcommittee | 34 |

# NICKEL

## I. Introduction

The Preparedness Subcommittee of the Senate Committee on Armed Services issued a report on nickel on January 18, 1951. Since that time efforts have been made to maintain a continuing survey of the nickel program. The Preparedness Investigating Subcommittee for more than a year has received complaints from industry that the current serious shortage of nickel has resulted in hardships and inequities in the availability and distribution among many consumers of nickel for nondefense uses. While the total supply of nickel available to the United States has been increased over the past 5 years by more than 100 million pounds, many small consumers, including some defense contractors essential to the preparedness program, contend that they are unable to obtain their equitable civilian share of nickel under the current distribution system, which was established and has been maintained by the International Nickel Co., Ltd., of Canada (Inco) since the Government lifted controls in 1953.

While investigating these complaints the subcommittee has endeavored to bring up to date its study of the preparedness phases of the nickel program. The subcommittee has been informed by the Department of Defense that there has been a tremendous increase in the reported defense consumption of nickel, and that the reported level of consumption has greatly exceeded the estimates of peacetime defense requirements.

In view of the fact that we must rely to a great extent upon the same factors used in formulating peacetime estimates to calculate stockpile and mobilization requirements of nickel, the subcommittee has noted with considerable concern that for more than a year the Department of Defense, Department of Commerce, and the Office of Defense Mobilization have been unable to explain satisfactorily the reasons for the significant and increasing discrepancy between estimates of and actual peacetime defense consumption. Serious inaccuracies in the factor of mobilization requirements may well have an adverse effect on the nickel expansion goal, the stockpile objective, stockpile delivery schedule, and the economic well-being of certain civilian industrial consumers, many essential to the defense effort.

The current nickel shortage has been restricted to the civilian market through operation of the "DO rating system," under which virtually all military procurement and construction is rated and required to be given preference over unrated business. Alleged abuses in the use of defense ratings has been a subject of inquiry by congressional committees. The Department of Commerce has stated that it has found only a few cases where defense ratings have been used in violation of law, and that only a very small quantity of nickel was involved in these cases.

The resultant shortage of nickel in the civilian industry has caused the Office of Defense Mobilization to depart from its announced policy of adhering to an established schedule of stockpile deliveries. In 1955, the Office of Defense Mobilization found it necessary to divert more than 24 million pounds of nickel from delivery to the stockpile, in addition to certain authorized regular diversions from the Government-owned nickel plant in Nicaro, Cuba. Diversions from delivery to the stockpile for 1956 exceeded 74 million pounds. In order to provide for the expanding civilian demand and reported defense requirements, the Government in May 1956, authorized an upward revision of the nickel expansion goal to provide for an additional 60 million pounds annually of available nickel supply.

The subcommittee's investigation has extended to a review of the Government's nickel program over the past 5 years. It has revealed several serious weaknesses that have developed in the Government's program and which are discussed in this report.

## II. The Vital Nature of Nickel in the Preparedness Program

In our preparedness program nickel is a strategic and critical material of the very highest importance. This is so for the reason that, when combined with other metals, nickel imparts unique qualities of toughness, strength, durability, and resistance to heat and corrosion. For this purpose it is contained in varying quantities in a wide range of alloys, many of which are indispensable to the jet aircraft, guided missile, and atomic energy phases of the preparedness program. In many of these alloys there is no satisfactory substitute for nickel, available in sufficient quantities. And, as the speed of aircraft and missiles increases, the defense requirement of nickel will increase at an even greater rate.

At the same time, nickel has become a material of strategic importance to our civilian industrial economy, where it is being consumed in increasing quantities. The growing civilian demand is the result of a continually expanding economy, as well as the application of nickel in new alloys and other uses where the superior qualities offered by nickel are desirable and in some instances essential. The United States consistently has been the largest consumer of nickel among the nations of the free world, but the domestic production has amounted to only a small percentage of the total supply. Consequently, the United States has had to depend almost entirely upon Canadian nickel production, and more specifically upon the International Nickel Co. This producer has dominated, and except for periods of Government control in times of war, has virtually controlled the nickel market in the United States. This situation has always created special problems for the United States during times of nickel shortages.

In order to relieve the critical shortage that existed in World War II, the United States expended approximately $32 million for construction of facilities in Nicaro, Cuba, to produce nickel oxide from the Cuban ore deposits containing a small percentage of nickel. The Nicaro product was one of limited application; and, after the war, operation of the plant was abandoned because of a decline in demand and because the product could not then compete successfully in a more limited market.

During 1950 the demand for nickel increased greatly, and the existing productive capacity became seriously inadequate. Again the United States was faced with a critical shortage of nickel, and reactivation of the Nicaro facilities became imperative. Initial production from the rehabilitated Nicaro plant was achieved in January 1952, but full production was not reached until July 1952. Consequently, the Government in 1951 found it necessary to adopt an extensive conservation program and place the available supply of nickel under stringent controls which included prohibition against the use of nickel for certain items considered nonessential.

In January 1951 the Preparedness Subcommittee issued a report recommending the immediate reactivation of the Nicaro facilities and a consideration of the feasibility of expanding the facilities and improving the Nicaro product. The subcommittee recommended further that the Government adopt certain measures to assist existing producers in the expansion of their facilities and encourage development of additional sources of supply in order to lessen the dependence of this country upon the International Nickel Co. Other recommendations by the subcommittee included the accumulation of an adequate stockpile as rapidly as practicable and the adoption of an effective program of conservation with emphasis on the use of substitutes where possible.

## III. Production

### A. FREE-WORLD EXPANSION OF PRODUCTIVE CAPACITY

Total free-world supply of nickel since 1951 has been increased by more than 135 million pounds. Table 1 below reflects the annual increase since 1950 in the free-world supply.

TABLE I.—*World mine production (exclusive of U. S. S. R.) of nickel, by countries, 1946–50 (average) and 1951–55, in short tons of contained nickel*

| Country | 1946–50 (average) | 1951 | 1952 | 1953 | 1954 | 1955 |
|---|---|---|---|---|---|---|
| Brazil (content of ferronickel) | ---------- | (1) | 29 | 55 | (1) | 57 |
| Burma (content of speiss) | ---------- | 700 | 70 | 16 | 116 | 72 |
| Canada [2] | 119,756 | 137,903 | 140,559 | 143,693 | 161,279 | [3] 174,581 |
| Cuba (content of oxide) | 2,922 | ---------- | 8,924 | 13,844 | 14,545 | 15,138 |
| Finland (content of nickel sulfate) | (1) | (1) | 65 | [4] 309 | 89 | 134 |
| French Morocco (content of cobalt ore) | ---------- | ---------- | 201 | 132 | 162 | 167 |
| Iran (content of speiss) | ---------- | ---------- | ---------- | ---------- | ---------- | 1 |
| New Caledonia [5] | 3,568 | 4,600 | 9,900 | 13,100 | 13,000 | 19,500 |
| Norway (content of ore) | 12 | ---------- | ---------- | ---------- | ---------- | ---------- |
| Rhodesia and Nyasaland, Federation of Southern Rhodesia (content of ore) | ---------- | ---------- | ---------- | (6) | (6) | (6) |
| Union of South Africa (content of matte and refined nickel) | 638 | 1,254 | 1,444 | 1,891 | 2,112 | 2,598 |
| United States: | | | | | | |
| Byproduct of copper refining | 717 | 756 | 633 | 591 | 639 | 451 |
| Recovered nickel in domestic ore refined | ---------- | ---------- | ---------- | 11 | 192 | 3,356 |
| World total (estimate) | 128,000 | 145,000 | 162,000 | 174,000 | 192,000 | 216,000 |

[1] Data not available; estimate by author of the chapter included in the total.
[2] Comprises refined nickel, nickel in oxide, and recoverable nickel in matte, etc., exported.
[3] Revised figure.
[4] Includes 233 tons of matte.
[5] Comprises nickel content of matte and ferronickel produced and estimate (by author) of recoverable nickel in ore exported. Mine production (nickel content) was as follows: 1946–50 (average), 3,260 tons; 1951, 7,400 tons; 1952, 11,750 tons; 1953, 18,800 tons; 1954, 15,100 tons; 1955, 28,000 tons.
[6] Data not available. Production of ore was in 1953, 63 tons; 1954, 62 tons, and 1955, 18 tons. Foreign Statistics, Division of Foreign Activities, Bureau of Mines, Aug. 16, 1956.

Source: From statistics compiled by Bernice B. Mitchell.

The tremendous increase in nickel production, during the period 1950–55, resulted from a concerted and intensive search for new sources of supply and an unparalleled effort to expand existing facilities. The critical shortage that developed in 1950 and resulted in the adoption of stringent controls and enforced conservation became a matter of international concern. In 1952 the International Materials Conference instituted a nickel-allocation program for the free-world countries. The United States received for that year an allocation of 67.6 percent of the total free-world supply.

In addition to the reactivation of the Nicaro facilities, the United States Government in 1951 began its program designed to encourage expansion of existing facilities and the development of additional sources of supply. Under this program, the United States, through such forms of financial aid as loans and premium price purchase contracts, made it possible for Canadian producers to increase production and to expand productive capacity. This country's expansion program, however, also included the exploration and development of domestic deposits. The expansion of Canadian facilities included three principal producers.

### B. INCO

The International Nickel Co. prior to the shortage of 1950 consistently maintained a conservative policy toward expansion of productive capacity. This policy was a subject of discussion in the Preparedness Subcommittee's report in 1951. When the shortage of nickel appeared in 1950, Inco's production was limited by the necessity of transferring from open-pit to underground mining operations, which involved the processing of lower grade ores. In spite of this, however, Inco announced in July 1951 that it had achieved its objective of increasing refined nickel production by 1 million pounds a month.

In 1949, Canadian production of nickel accounted for more than 95 percent of total free-world output. Approximately 90 percent of this amount was produced by Inco. Total deliveries of nickel by Inco increased from 243,865,030 pounds in 1951 to 290,463,000 in 1955. The greatest portion of this increase occurred in the period 1953–54. The accelerated deliveries in that period were aided to a considerable extent by financial assistance from the United States Government in the form of a premium price purchase contract in May 1953 for 120 million pounds of nickel to be refined at the rate of 24 million pounds annually from low-grade ores which required certain changes in mining and processing plans. Aside from this factor, the assistance offered by the United States to other producers and the development of new sources of supply undoubtedly proved the greatest incentive to Inco to expand its own productive capacity. The expansion of facilities by other producers and development of additional sources of supply in the period 1951–55 resulted in decreasing Inco's contribution to available supply from more than 90 percent in 1951 to less than 68 percent in 1955.

### C. FALCONBRIDGE

Falconbridge Nickel Mines, Ltd., the second principal Canadian producer entered the market as a producer of primary nickel in 1930. By the time of the outbreak of World War II, the company had become

an established producer. The Falconbridge refinery was located in Kristiansand, Norway, and the company operated primarily in the European market. With the German occupation of Norway during World War II, the Falconbridge refining facilities were cut off from the American market, but the Falconbridge ore was refined by Inco. After the war, however, Falconbridge regained its status as a primary producer.

From 1946 Falconbridge sold nickel to American consumers in steadily increasing quantities. While a certain portion of this was sold to the United States Government, Falconbridge made repeated offers during 1950–51 to furnish greater quantities of nickel to the stockpile. After extensive negotiations were conducted concerning these offers, as well as certain proposals by Falconbridge to expand production, a mutual agreement was concluded in February 1952.

In 1950 Falconbridge began an expansion program designed to increase its productive capacity to a rate of more than 40 million pounds annually. The United States, through the Defense Materials Procurement Agency, aided this expansion to the extent of a contract for the purchase of 50 million pounds of nickel at market price and the extension of a $6 million loan. The Defense Materials Procurement Agency in March 1953 probably gave added impetus to the Falconbridge expansion program through the award of a purchase contract which assured the producer an additional market up to 150 million pounds of nickel at a substantial premium. In addition to the measures for expanding productive facilities, the company entered into agreements for refining ores from a number of smaller Canadian nickel mining companies.

### D. SHERRITT GORDON

The emergence of Sherritt Gordon Mines, Ltd., as the third ranking Canadian nickel producer is one of the most significant developments in the expansion of the free-world sources of nickel. For some time prior to the development of the nickel shortage in 1950, Sherritt Gordon had engaged in pilot-plant operations in search of an economic process for refinement of the company's ore deposits in the Lynn Lake region of Manitoba, Canada.

Pilot-plant operation by Sherritt Gordon resulted in the successful development of a new and economic refining process. Upon completion of the pilot-plant operation, Sherritt Gordon began a development program which included construction of a refinery with a capacity of approximately 20 million pounds annual production. In April 1951, the General Services Administration concluded a contract with Sherritt Gordon which guaranteed a market for a quantity of nickel up to 80 million pounds. Although this contract offered no incentive from the standpoint of price, the producer received certain benefits in the form of advance partial payment for the ore concentrates. This action aided Sherritt Gordon in obtaining the necessary financing to complete construction of its refinery. The refinery was completed in 1954, and production in that year amounted to approximately 4 million pounds. In 1955 the producer increased annual output to about 17 million pounds.

### E. GOVERNMENT NICKEL PLANT, CUBAN NICKEL CO., NICARO, CUBA (NICARO)[1]

In terms of increased supply of nickel, reactivation of the Government nickel plant in Nicaro, Cuba, has proven successful. The rehabilitation program which began in January 1951 was pushed to completion by July 1952. Production of nickel in 1952 in the form of an oxide powder reached a total of 17,848,396 pounds. In 1953, with full-scale operation throughout the year, production of nickel-oxide powder rose to a total of 27,688,434 pounds. By June 1954 facilities were completed for the production of oxide sinter, a product more acceptable to industry and more suitable for stockpiling. The combined production of both forms of nickel amounted to 29,090,743 pounds in 1954 and 30,275,005 pounds in 1955.

Expansion of the productive capacity of the Nicaro plant and separation of nickel from the cobalt and chromium metals, which are contained in the Cuban ores in lesser quantity, have yet to be realized. The expansion of the plant's productive capacity was recommended as early as September 1951. In furtherance of this action, the Bureau of Mines, upon request from the Defense Materials Procurement Agency, in February 1952, began an extensive exploration of the Cuban ores to determine whether they were sufficient to justify a 100 percent increase in the plant facilities. In late 1952 this expansion program was certified as vital to the defense effort and the expansion was authorized. In December 1953, the expansion was recertified as being vital to the national defense and the expansion was authorized again, but the program did not actually get underway until the latter part of 1954. Some, but not all, of this delay was occasioned by the necessity for further exploration of the Cuban ore deposits. The expanded facilities are to be completed sometime in 1957 according to the present schedule, which should be expedited as rapidly as possible.

The Government launched in 1952 an extensive research program to develop an economic process for the extraction of nickel in the form of metal and to recover the chromium and cobalt as metal. Large sums of money have been expended on this program, but thus far the objective has not been realized. In 1955 a small portion of the Nicaro production was converted into metallic nickel under a contract between Inco and the General Services Administration. This nickel was considerably below the quality required by stockpile specifications. On February 1, 1956, General Services Administration concluded a contract with the National Lead Co. for the conversion of certain specified quantities of Nicaro nickel oxide sinter and powder into metallic nickel. This will be done by the National Lead Co. for a 5-year period at plant facilities leased by the company in the United States.

This action will succeed in making a portion of the Nicaro nickel more acceptable to all segments of the consuming industry and more suitable for stockpiling. But, it will not help materially to place the Nicaro operation in a position to compete more favorably with other producers. It should be remembered that it was this factor that

[1] The Nicaro plant is currently operated under a management agreement between the Government and Nickel Processing Corp., of which the National Lead Co. owns 74 percent and certain Cuban interests control 26 percent.

prevented the United States from finding a satisfactory buyer for the plant when it was declared surplus at the end of World War II. The Government's investment in this plant is now more than twice the original cost. By the time the expanded facilities are completed, this investment will be greatly increased. It should be protected to the greatest extent possible.

### F. DOMESTIC SOURCES

The Preparedness Subcommittee in its report on nickel in 1951 also recommended that the United States encourage the development of domestic sources of supply where feasible. This recommendation included reference to a project by the M. A. Hanna Co. involving a study of certain ore deposits in Douglas County, Oreg. Subsequent negotiations between the Government and the Hanna Co. resulted in the execution of contracts between the Government and the Hanna Coal & Ore Corp. and the Hanna Nickel Smelting Co. for the development of these ore deposits and the construction of a ferronickel smelting plant for the production of ferronickel up to a maximum of 125 million pounds of contained nickel.[2] The Government assisted this operation materially by underwriting the development and construction programs through capital advances and by the offer of premium prices for the nickel produced.

In June 1955 the Hanna Co. made a preliminary progress report to the Government. Production was expected to be increased in 1956 to more than 14 million pounds with maximum production in the amount of about 18 million pounds annually. The Hanna product, like the Nicaro product, is one of limited application, but it can be used effectively by the steel producers. The cost of the Hanna nickel is considerably above the current market price of 74 cents, but it finds a ready demand in the current market.

The foregoing projects represent the significant increases that have occurred in the free-world supply of nickel. These projects have been sponsored or encouraged by various forms of financial aid, as part of the Government's nickel expansion program. They also account for the predominant portion of the total increase in free-world supply. All of these projects, with the exception of the final approval for the Nicaro expansion, were initiated prior to the middle of 1953.

### G. ADDITIONAL PHASES OF THE NICKEL EXPANSION PROGRAM

Other attempts have been made to develop domestic sources of nickel, but up to now they have not been successful in terms of increased supply. Since 1951 the National Lead Co., with financial assistance from the Government, has attempted to produce nickel from residual concentrates obtained from the production of lead at the company's plant in Fredericktown, Mo. Although facilities have been completed for more than a year, National Lead has been unable to produce specification metal. Even if successful, however, this project would probably yield less than a million pounds annual production.

[2] On October 1, 1954, the Hanna Coal & Ore Corp., with consent of all parties concerned, assigned to the M. A. Hanna Co. the supervision of the nickel plant of the Hanna Nickel Smelting Co., and control over the sales of ferronickel produced by the plant.

During 1953 and 1954 the Government concluded a number of research and exploration and development contracts. One project, initiated in May 1953 for the development of additional ore deposits in Canada, under a contract with Western Nickel, Ltd., met with very limited success. Final decision under this contract has been postponed until some time in 1959. A research contract was concluded with L. W. King in September 1954. This project, which proved unsuccessful, involved experimentation with certain domestic manganese ore deposits containing small quantities of nickel.

In addition to these contracts, the Emergency Procurement Service, General Services Administration, in October 1954 concluded an agreement with Freeport Sulphur Co. for the construction of a pilot plant to determine the feasibility of extracting separately nickel and cobalt metals from ore deposits owned by Freeport Sulphur in Cuba. Even if the pilot-plant operation proves successful, initial production from this facility is not expected before 1959. However, the development of this project will mean the establishment of important nickel refining facilities in the United States.

In addition to the ore deposits owned by the United States Government and Freeport Sulphur in Cuba, Bethlehem Steel Co. owns extensive deposits of the Cuban iron ores. Bethlehem, after many years of research and pilot-plant operations, reportedly developed a successful and economic process for the recovery of both nickel and cobalt, as well as other valuable extractions. This company reportedly rejected an offer by the Government in 1954 to assist in the construction of a pilot plant on the ground that additional pilot-plant operation was unnecessary. Further efforts should be made to encourage the development of this source, if the Bethlehem process has proven fully successful.

## IV. United States Consumption of Nickel

### A. TOTAL CONSUMPTION, 1950–55

In spite of the concerted effort on the part of the United States Government and others to increase available free-world supply of nickel, the increase in production has not kept pace with the total increase in demand. Consumption of nickel in the United States in 1955 reached the highest rate in the history of our Nation. Yet there was a serious shortage of supply and some consumers reportedly received considerably less nickel under the present distribution system than they received either in the period of controls during the Korean emergency or in the preceding period. Table II below shows the consumption of nickel by industry groups in the United States for the period 1950–55.

TABLE II.—*Nickel (exclusive of scrap) consumed in the United States, 1950–55, by uses*

[In short tons of nickel]

| Use | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|---|---|---|---|---|---|---|
| Ferrous: | | | | | | |
| Stainless steels | 20,911 | 21,792 | 27,343 | 22,274 | 20,399 | 26,520 |
| Other steels | 17,777 | 16,425 | 17,978 | 18,950 | 13,637 | 18,181 |
| Cast iron | 4,881 | 3,716 | 3,639 | 4,214 | 4,115 | 5,431 |
| Nonferrous [1] | 29,409 | 26,952 | 32,018 | 30,807 | 28,053 | 25,641 |
| High-temperature and electrical-resistance alloys | 5,704 | 7,408 | 8,020 | 8,221 | 6,597 | 8,669 |
| Electroplating: | | | | | | |
| Anodes [2] | 16,179 | 5,410 | 6,139 | 13,274 | 13,460 | 14,627 |
| Solutions [3] | 1,227 | 455 | 484 | 972 | 1,323 | 1,357 |
| Catalysts | 1,200 | 1,384 | 1,460 | 1,435 | 1,344 | 1,525 |
| Ceramics | 393 | 249 | 199 | 251 | 304 | 417 |
| Magnets | 973 | 646 | 595 | 798 | 681 | 882 |
| Other | 1,335 | 2,246 | 3,522 | 4,476 | 4,820 | 6,054 |
| Total | 99,989 | 86,683 | 101,397 | 105,681 | 94,733 | 109,304 |

[1] Comprises copper-nickel alloys, nickel-silver, brass, bronze, beryllium alloys, magnesium and aluminum alloys, Monel, Inconel, and malleable nickel.
[2] Figures represent quantity of nickel put into process for producing rolled anode bars, plus nickel used in casting anodes and nickel cathodes used as anodes in plating operations. Therefore, figures do not represent quantity of nickel anodes consumed by platers.
[3] Figures estimated to represent about 70 percent of total.

Source: Bureau of Mines.

### B. NICKEL SHORTAGE 1950

The nickel market during 1950 and 1951 was characterized by sharply rising demand, and an inadequate level of production, resulting in a serious supply-demand imbalance with increasing gray-market activity. In an effort to insure an equitable distribution, the two principal Canadian producers, Inco and Falconbridge, instituted voluntary allocation programs.

In 1950 total consumption of nickel in the United States exceeded the 1949 rate of consumption by more than 60 million pounds. But, in 1951 the level of reported consumption declined considerably, in spite of a sustained demand. There was less nickel in the regular market, but a greater quantity of nickel apparently moved in the gray market.

### C. GOVERNMENT CONTROLS

By 1951 the Government initiated a program of control on nickel. On January 1, 1951, limited controls were placed on the consumption and procurement of nickel. On August 15, 1951, the Government placed nickel under complete control. These controls, under administration by the National Production Authority, Department of Commerce, included restrictions and prohibitions against the use of nickel in the manufacture of many items considered nonessential. These restrictions and prohibitions extended chiefly to the stainless steel and electroplating industries.

The domestic controls on nickel use and distribution were invoked under authority of section 101 of the Defense Production Act of 1950. Under this program adequate supplies of nickel were assured for defense needs by assignment of priority ratings to defense orders. Under the same act, the remaining supply of nickel was distributed to civilian consumers according to individual allocations established by the National Production Authority.

In 1951 total consumption of nickel in the United States decreased by more than 26 million pounds. The greatest decline occurred in the electroplating industry. At the same time, however, the quantity of nickel consumed by the stainless-steel industry exceeded the high level of consumption established in 1950. A number of stockpile purchase contracts concluded during 1951 accelerated deliveries to the stockpile to some extent in that year.

The free-world supply of nickel was also under allocation in 1952 and for 9 months during 1953 by the International Materials Conference. Under this arrangement, the United States received from the total free-world production, an allocation of 67.6 percent in 1952 and an annual rate of 68.6 percent for the first 9 months in 1953. Meanwhile the domestic controls on the civilian nickel supply continued in effect until November 1, 1953. Nickel was among the last of a number of critical materials from which controls over civilian supply were removed. Even then it remained the most critical defense material.

### D. UNITED STATES IMPORTS OF NICKEL, 1950–55

The consumption of nickel in the United States rose during 1952 and 1953 to the highest level of any period following the high rate of consumption during World War II. At the same time deliveries to the stockpile increased significantly. These increases were made possible by the concerted efforts to expand production. While in 1953 total imports of nickel were about 10 percent more than in 1952, export totals increased even more sharply.

Throughout the period of controls, imports of nickel into the United States kept pace with the continued increase in total production. Table III below shows total annual imports of contained nickel into the United States in all forms, including scrap, for the period 1950 to 1955, inclusive.

TABLE III.—*United States imports of nickel (pounds nickel content) for consumption, 1950–55*

| | Canada | Cuba | United Kingdom | Norway | Other | Total |
|---|---|---|---|---|---|---|
| 1950 | 171, 905, 847 | ---------- | 756, 765 | 7, 298, 715 | 834, 601 | 180, 795, 928 |
| 1951 | 180, 007, 924 | 6, 165 | 917, 465 | 9, 742, 420 | 1, 094, 578 | 191, 768, 552 |
| 1952 | 189, 909, 250 | 14, 949, 918 | 1, 140, 470 | 11, 971, 098 | 18, 847 | 217, 989, 583 |
| 1953 | 190, 620, 684 | 29, 031, 077 | 1, 725, 775 | 18, 753, 591 | 1, 653, 487 | 241, 784, 614 |
| 1954 | 212, 101, 646 | 28, 695, 431 | 286, 049 | 21, 827, 205 | 1, 862, 277 | 264, 772, 608 |
| 1955 | 231, 085, 485 | 28, 734, 968 | 264, 294 | 22, 621, 412 | 2, 512, 517 | 285, 218, 676 |

Source: Official Statistics, U. S. Department of Commerce.

### E. UNITED STATES EXPORTS OF NICKEL, 1950–55

While total imports of nickel into the United States by 1955 increased more than 57 percent over the 1950 rate, total exports of nickel have increased at a far greater rate. This increase is reflected in table IV, which shows the total quantity of nickel exported in all forms, excluding nickel contained in manufactured items.

TABLE IV.—*United States exports of nickel*

| Year | Pounds | Year | Pounds |
|---|---|---|---|
| 1950 | 7, 289, 669 | 1953 | 30, 336, 960 |
| 1951 | 9, 243, 165 | 1954 | 28, 478, 851 |
| 1952 | 13, 882, 263 | 1955 | 41, 201, 296 |

Source: U. S. Department of Commerce.

The most significant increases in exports have taken place in the following category: "Nickel and nickel-alloy metals in ingots, bars, rods, and other crude forms, and scrap (formerly part of 'alloys and scrap containing nickel,' including monel metal)." The total quantity in this classification was 25,635,158 pounds in 1954 and 38,633,110 pounds in 1955.

### F. DEVELOPMENT OF THE CURRENT NICKEL SHORTAGE

The current critical nickel shortage actually began in 1954. In that year free-world production of nickel reached an all-time high level of approximately 384 million pounds. Imports of nickel into the United States amounted to more than 264 million pounds, and there was a slight increase in domestic production.

In spite of the considerable increase in production and imports, as well as a reduction in defense requirements, there was not sufficient nickel to satisfy civilian needs in 1954. Consumption of nickel in the United States in 1954 amounted to less than 190 million pounds, considerably below the rate of consumption for 1952 and 1953 when defense requirements were greater. A rapidly accelerated stockpile delivery schedule made effective in 1953 contributed to the shortage problem.

This accelerated schedule was established in 1953 prior to the removal of controls on the civilian supply of nickel. During 1953 the Government concluded several stockpile purchase contracts, involving large quantities of nickel, purchased at a substantial premium over the market price. Some of the premium price contracts were offered to encourage expansion of productive facilities. At least one contract, however, was an outright purchase agreement, which contained no provision for an increase in productive capacity. At the same time the decision was made to direct virtually all of the Nicaro production into the stockpile. This decision was made in spite of the fact that the Government had previously agreed to pay the National Lead Co. a fee to encourage the use and promote the sale of the Nicaro product.

By 1955 the shortage became one of increasing severity. It was aggravated by expanding industrial activity and an unexplained continued increase in reported defense consumption, considerably in excess of estimated defense requirements. This condition resulted in the Government's departure from the previously announced policy of strict adherence to the stockpile delivery schedule, even though it meant a reduction of the supply available to the civilian economy.

While the free-world production of nickel in 1954 and imports of the metal into the United States both increased to the highest level in history, the available supply was totally inadequate to meet the demand. The United States share of free-world supply dropped to less than 66 percent, the lowest point since 1951. Gray-market activity expanded rapidly, and hardships and dislocations in civilian

industry grew steadily worse. The development of drastic consequences was averted only by diversions of considerable quantities of nickel from delivery to the stockpile.

The total reported consumption of nickel in 1955 was slightly in excess of 218 million pounds. Early in 1955 the Office of Defense Mobilization authorized an increase in the regular diversions from Nicaro. During the year additional diversions from Nicaro and other sources increased total diversions for the year to 29,950,000 pounds. Without these diversions the quantity of nickel available in 1955 would have been even less than in 1954 in spite of an increase in 1955 of about 15 percent in production and about 8 percent in total imports.

The current nickel shortage has now reached grave proportions. Diversions from delivery to the stockpile for 1956 exceeded a total of 74 million pounds. This reduced the rate of delivery below the level established prior to 1952. At the same time the tremendous increase in reported defense consumption presages an upward revision of the stockpile objective, which will further unbalance normal demand and supply ratios.

## V. Removal of Controls

### A. EXTENT OF NICKEL DECONTROL

On October 5, 1953, the Office of Defense Mobilization approved the decontrol of nickel to be effective November 1, 1953. As pointed out by the Director of ODM, the removal action extended only to nickel distribution and use in the civilian economy. The Government retained controls on defense use of nickel. Since the early part of 1953, however, there has been a number of significant changes in the regulations covering the use of nickel for defense.

At the time of civilian decontrol, these regulations extended to two separate but interrelated systems: (1) The defense order rating system for priorities and (2) the defense materials system (DMS) for allocations. The DO rating system, established by the National Production Authority, and continued by the Business and Defense Services Administration [3] (BDSA), is a system, in a modified form, under which all defense orders are given rating and allotment numbers which require preference over unrated civilian orders.

The defense materials system, in effect since July 1, 1953, modified the National Production Authority's allocation system (the controlled materials plan), under which available supply of certain strategic and scarce materials were allocated by the Government for all production and construction in the United States. The DMS, in terms of area of operation, is limited to defense agencies. It includes the basic materials of steel (with nickel-bearing stainless steel included as a separate controlled material), copper, aluminum, and, effective the fourth quarter of 1956, nickel alloys. The announced purpose of DMS is to provide a framework to be used as a basis for rapid transition to complete control of scarce and critical materials in the event of mobilization.

The exact quantities involved in the national stockpile for nickel are classified information. However, it is known that the Govern-

[3] See appendix A for significant changes in regulations, organizations, and laws relating to defense mobilization and priorities and allocations.

ment, up until 1953, gradually increased stockpile commitments to the extent deemed feasible under the expansion program. In 1953, the schedule was greatly accelerated, exceeding the schedule of planned expansion. Through this program, at the time of decontrol, the Government became invested with complete control of the entire production of both Nicaro and Hanna Nickel Co., with control of a substantial proportion of the annual output of two other principal producers, and also with control of a small percentage of the production of Inco. Consequently, it should have been clear that any subsequent action taken by the Government with respect to the policies of stockpile deliveries and diversions would have a significant effect on the domestic nickel market. And adherence to the accelerated stockpile delivery schedule, in spite of a significant increase in defense orders, would result inevitably in hardships and dislocations of greater magnitude than those that existed under controls.

### B. JUSTIFICATION FOR REMOVAL OF CONTROLS

In a memorandum supplied to the committee by the Office of Defense Mobilization, the following statement on the justification and reasons for eliminating Government controls appeared:

> The basic justification for such detailed controls, as those presently existing, needs to be stated. In time of full mobilization the national economy is substantially reoriented to production for war, and under such circumstances the Government must take responsibility for providing a substitute for the normal operation of what are called the economic laws. At the present time there is no such disruption of markets and supplies as occurs in time of war. The reasons for controlling nickel during the last several months have been special and specific. They originated with the necessity for assuring supplies of nickel to the current military program, Atomic Energy Commission program, and stockpiling program. Provision of these national defense requirements has left a balance of supply substantially less than the balance of demand. The Federal Government was obliged to provide for the national defense and in doing so it created a shortage of nickel for which it had to accept responsibility. To the extent that Government action may relieve or assuage the hardships and dislocation resulting from such a shortage, the Government has a duty to act.
>
> This concept of governmental responsibility in time of limited emergency is well expressed in the Defense Production Act as most recently amended. In section 101 the President is authorized to require preference in the performance of contracts and to allocate materials where necessary to promote the national defense. On this authority there is imposed the restriction that "the powers granted in this section shall not be used to control the general distribution of any material in the civilian market unless the President finds (1) that such material is a scarce and critical material essential to the national defense, and (2) that the requirements of the national defense for such material cannot otherwise be met without creating a significant dislocation of the

normal distribution of such material in the civilian market to such a degree as to create appreciable hardship."

A justification for the decontrol of a shortage material must, of course, speak in these same terms. It is not anticipated that the supply of nickel will be adequate to meet total demands for many months. It is not argued that the shortage will fail to cause dislocation and hardship. There is dislocation and hardship under the present allocation and use controls, and *the essential premise of decontrol is that the continuance of the controls will not serve to relieve or assuage that dislocation and hardship.* In other words, at times like this it is not enough, to justify continuing controls, that national defense requirements create a shortage; it must also be true that the difficulties which flow from the shortage will somehow be eased by the continuance of the controls.

There is the obvious danger in undertaking decontrol that dislocation and hardship will be increased. It is to that possibility that our attention is first drawn by the decontrol proposal. The less apparent but more serious danger is that the Government's first responsibility, the national defense, will not be adequately provided for. Both of these possibilities must be covered in the decision here being made.

Compelling among the considerations favoring decontrol is the fact that competition in a free market is a major factor in the maintenance of a strong and dynamic economy. We have ample evidence that a controlled economy, with the best of intentions and the highest of skills, is not likely to prosper. In an emergency controls can save an economy but if long continued they are almost certain to stifle and warp it. There is, therefore, a burden of proof upon the proponent of continuing controls to establish clearly and persuasively that distribution of the shortage material in a free market, under present circumstances, will be less effective or less equitable or less orderly than Government distribution to a degree that will aggravate existing dislocations and hardships. * * *

The International Nickel Company, which supplies 80% of the nickel consumed in the United States has advised the Secretary of Commerce that "after taking care preferentially of the military and AEC requirements the balance of our nickel as reported quarterly will be distributed to the civilian economy in a fair and equitable manner." Further in response to the Secretary's concern over possible price increases resulting from unrestricted civilian demand, the Company advised that "as far as our own prices are concerned, the record speaks for itself." * * *

* * * The Government has agreed on a program of regular purchases that will assure our meeting the schedules. This agreement will be adhered to even though it may be necessary to make slight reductions in the availability in the civilian economy, although reductions in military requirements and increases in supply will probably make this unnecessary.

There is no dispute with the statement that "competition in a free market is a major factor in the maintenance of a strong and dynamic economy." It was partially for this reason that the Government, in its nickel expansion program, encouraged the entry of other producers in the nickel market. The nickel market was not a free market under Government controls, and it has not been a free market since the ending of controls. In fact, the market for nickel traditionally has been a controlled market. The absence of competitive forces in the nickel market was pointed out in a report from the Emergency Procurement Service of GSA in November 1953. This report was made in response to a request from the Director of ODM on June 12, 1953, for a study of the possibility of providing an additional refinery on the North American Continent. The report contained a concise review of the growth and expansion of the nickel industry, and recommended that a decision with respect to the establishment of an additional refinery be deferred for the following reasons:

> Strategic considerations have played the major role in the nickel expansion program and these cannot be expected to influence private investment.
> The market for nickel is not a Free Market but one in which the price has been determined by INCO for several generations. Industrial organizations will have to be pretty well assured that a property will be able to compete in peacetime markets before they will want to invest in such an enterprise without Government guarantees of one form or another. It seems apparent that for the next 20 years INCO will continue to dominate the nickel industry albeit its percentage of the Free World nickel output may drop within a range of two-thirds to one-half. Instead of three major producers we may have a half dozen or more all with plants in North America or Cuba. * * *
> In view of the progress made to date in nickel expansion the contracts now under negotiation for new facilities and the progress being made with new processes under development, it would seem that the logical thing to do would be to defer any arbitrary decisions regarding the construction of a nickel refinery until the pattern of developments in the near future is more clearly discernible.

### C. THE NICKEL MARKET AFTER DECONTROL

Inco is unquestionably the dominant supplier of nickel consumed in the United States. Prior to 1951 the company supplied almost 90 percent of total United States consumption. In 1953, however, Inco supplied actually less than 80 percent of all nickel imported into the United States, including the Nicaro production. Since that time the advantage has been further reduced to a percentage of less than 70 percent.

It would seem from this that the nickel market in the United States should be freer today than in any previous period, in which nickel distribution was not subject to Government controls, but such is not the case. The Government through the exercise of authority over the expansion projects of Nicaro and Hanna Nickel and purchase contracts, including those involving substantial quantities of the

output of at least two other producers, is in a position to control in excess of 25 percent of nickel consumed in the United States. When this quantity is added to the percentage controlled by Inco, it leaves all other producers with a complete freedom of choice to the extent of less than 5 percent of the civilian market.

With this situation having been created, the decision in 1953 to direct nearly all Government-controlled nickel into the stockpile, resulted in reshifting the balance of competitive forces in the civilian market. In effect it increased Inco's contribution to the civilian supply to more than 90 percent. Thus, the removal of Government controls had the effect of placing Inco in a position to exercise greater control over the civilian market.

## VI. Allocation of Nickel by INCO

When Government controls were removed, there was not enough nickel to fill defense orders and meet the civilian demand. At that time, at least one of the smaller established producers supplied a limited number of customers in the United States with a more or less fixed quantity of nickel. This quantity was known to the Government, but with removal of controls the Government yielded the authority to allocate this, as well as other quantities of nickel not committed to the stockpile. There remained, of course, the authority to require priority for defense orders out of the available supply.

Inco agreed prior to the removal of controls to take care of all defense orders preferentially. This action in effect placed Inco in a position of supplying all industrial consumers with the nickel required by them in the performance of defense contracts. It may have simplified the administration of the DO rating system, but at the same time it prevented competition among nickel producers in the field of industrial defense consumption.

Aside from the agreement to give preference to defense orders, Inco further agreed to distribute the balance of its nickel to civilian industry in an equitable manner. With the subtraction of all stockpile commitments, Inco's competitors in 1953 regularly supplied less than 10 percent of the balance available for civilian consumption, and most of this was already committed to regular customers. If a competitor's production was not wholly committed to the Government, as was the case of National Lead at Nicaro, it was directed more to foreign than domestic markets. Hence, the task of distributing the balance of the supply fell to Inco.

Much has been said about the allocation system devised by Inco, but there are not sufficient details available to weigh the fairness of it to all consumers. Briefly, the company reportedly studied the history of consumption of industry segments and of each user, including the period of Government controls. From this point, Inco, using several base periods and other varied factors, arrived at a basic entitlement for each consumer. It required a period of from 4 to 6 months to complete this system. Yet, after checking the system for a period of 2 days around August 1954, the Director of the Business and Defense Services Administration was able to certify that it is equitable. The Government reportedly did not request a customer list from Inco, on the ground that such information is private.

The other nickel producers admittedly did not participate in the establishment of this distribution system. Their compliance with

the system was dependent upon the extent to which they cooperated through Government participation in the program, by supplying the Government information with respect to their nickel distribution. But, if the Government could not request or require a customer list from Inco, it could not similarly obtain one from the other producers. And, there is evidence that other producers have since supplied certain consumers with undisclosed quantities of nickel. The effect of this on the distribution pattern is apparent.

This situation is said to be corrected when a customer submits a request to Inco for nickel,[4] showing total requirements of primary nickel for both defense and nondefense use and deducting "nickel to be obtained from other sources." Inco then deducts that quantity from the consumer's allocation. The showing of nickel to be obtained from other sources is of no legal effect and, therefore, is neither required of, nor binding on the consumer. Moreover there is ample evidence that many consumers do not list this quantity, especially where the nickel to be obtained is premium-price nickel. A listing of this nickel, regardless of the price to be paid, results in a reduction of the consumer's allotted share of market price nickel.

Some of the smaller civilian consumers of nickel, including a number who are also engaged in defense production and vital to the defense effort, have reported they did not consume all their nickel in primary form during the base periods. They received varying quantities of their supply in partially processed forms from larger consumers, often in competition with them, who received nickel in primary form either directly from Inco or one of its distributors. Other smaller consumers received their supply of primary nickel from larger and often competitive consumers who were supplied indirectly by Inco.

Numerous complaints have been received from this segment of the industry, to the effect that they have been denied their equitable proportion included in the allocation given the larger consumers. The reported position of Inco is that it cannot tell a customer how to distribute his allocation. The stated position of the Government is that it can only refer the complaint to the smaller consumer's supplier. An attempt to intercede on behalf of the smaller consumer reportedly would disturb the balance and require intercession on behalf of other consumers, which would be in the nature of informal controls. The Government rejects entirely the principle of informal controls thus outlined. It would seem that these smaller consumers are then left without recourse. The extent of these reported inequities should be subjected to a thorough review.

## VII. Prices

Currently, there are several price standards in the nickel market. These include the black market, the gray market, the Government premium-priced market and Inco's contract market price.

### A. BLACK MARKET

The term "black market nickel" refers to a quantity of nickel obtained or sold through the illegal use of defense rated orders. The price of nickel in this market may range anywhere from the market

[4] A copy of the standard form "Request for INCO Nickel Supply" is shown in appendix B.

price, currently 74 cents per pound, to more than $3 per pound, according to the extent of the scarcity. The volume of nickel moving in this market, according to the reports by the Business and Defense Services Administration, is of very limited quantity. But, undoubtedly the scarcity of nickel in the civilian market offers encouragement to would-be black market profiteers and, from all reports, the Government's effort to determine the amounts of nickel moving in the illegal markets has been very limited.

Any quantity of nickel illegally obtained or sold without discovery affects the accuracy of defense estimates to the extent of the quantity involved. The activity of the operators in this market can be curtailed only through strict and thorough enforcement of the defense rated order system. The administration of the compliance program should be strengthened wherever possible.

### B. GRAY MARKET

The gray market is often referred to as the market for any and all nickel above Inco's established market price. For purposes of discussion in this report, it excludes black market nickel and Government premium price nickel. It includes all other nickel in the domestic market that is available outside the Inco market price allocation system. The Government has reported that this market is confined to imports of nickel from Japan, Germany, and other foreign sources, as well as nickel generated from domestic scrap. The exact quantity of nickel generated from scrap is not known. Although the volume of imports from foreign sources—excluding Canada, Cuba, United Kingdom and Norway—increased in 1955, the total quantity, as reflected in table III, was only 2,512,517 pounds.

There is ample evidence, however, that other principal producers have offered nickel in the civilian market at prices above the Inco price. In addition, the Government has notice of the fact that at least one of the other principal producers has sold undisclosed quantities of nickel to its regular customers in the United States at premium prices. The price of nickel is not subject to any form of legal control, and such activity is legitimate.

### C. GOVERNMENT PREMIUM PRICE NICKEL

Government-controlled nickel varies in price from an amount of 70½ cents per pound for Nicaro oxide sinter to more than $1 per pound, under certain nickel stockpile purchase contracts. Premium price nickel under the Government program does not affect the civilian market until it is diverted from delivery to the stockpile. Even then the effect is not felt in the consumption of defense rated orders, inasmuch as Inco supplies the nickel for these orders at its quoted price of 74 cents per pound. Hence, when the premium price nickel is diverted from delivery to the stockpile, civilian consumers must absorb the increased cost.

### D. INCO PRICE

It is noted in the justification for decontrol of nickel in the civilian economy, that the Secretary of Commerce expressed concern over possible price increases which might result from unrestricted civilian

demand. In response to this, Inco replied, "as far as our own prices are concerned, the record speaks for itself." The pricing policy of Inco has been a subject of considerable study and discussion. Basically, in the United States market, it has been a policy of control. It was pointed out in the Preparedness Subcommittee's report in 1951 that "Inco's price schedules for nickel demonstrates a classic inflexibility." Table V below shows the gradual upward trend which has characterized Inco's pricing policy.

TABLE V.—*Contract prices quoted by Inco to United States buyers, for electrolytic nickel, carlots f. o. b., Port Colborne, Ontario, 1929–56*

| *Year* | *Cents per pound* |
|---|---|
| 1929 to 1939 | 32 |
| January 1939 to Nov. 24, 1946 | [1] 31½ |
| Nov. 25, 1946, to Dec. 31, 1947 | 35 |
| Jan. 1, 1948, to July 21, 1948 | [2] 33¾ |
| July 22, 1948, to May 31, 1950 | 40 |
| June 1, 1950, to Dec. 12, 1950 | 48 |
| Dec. 13, 1950, to May 31, 1951 | 50½ |
| June 1, 1951, to Jan. 13, 1953 | 56½ |
| Jan. 14, 1953, to Nov. 23, 1954 | 60 |
| Nov. 24, 1954, to Dec. 5, 1956 | 64½ |
| Dec. 6, 1956, to date | 74 |

[1] Reduction equivalent to decrease of ½ cent per pound in rate of duty on refined nickel into the United States effective Jan. 1, 1939.
[2] Reduction equivalent to decrease of 1¼ cents per pound in rate of duty—effective Jan. 1, 1948.

While the price of nickel in the United States has reflected a continual increase, the market price of nickel in European and other foreign markets has generally fluctuated with changes in demand and in times of scarcity has been considerably higher than the Inco price. Inco, consequently, has maintained different pricing policies with respect to the United States market and European markets.[5]

During the period 1920–24 the price fluctuations resulted largely from a price war between Inco and the British America Corp., Inco's first serious threat to competition in the American market.[6] With the entrance of marginal producers into the United States nickel market, the question of pricing policy becomes an issue of paramount importance. The current price differential between the United States and foreign markets is bound to result in the loss of nickel from the American market.

Inco's pricing policy has also been influenced by competition offered by other metals. In an effort to encourage the use of nickel, Inco has always maintained an extensive research program, which has resulted in significant contributions to the industrial economy through the development of new and superior alloys, such as Monel. This measure has been used at times during periods of lower demand in place of a price reduction. At the same time, Inco has frequently refrained from increasing the price of nickel in an effort to discourage major users from searching for substitutes. If satisfactory substitutes for nickel should be found, especially in any major field of application, it could not be expected that Inco would encourage their use in preference to nickel.

This fact is perhaps best illustrated by the response of Inco with respect to development of new alloys using less nickel. The most

[5] See Main, O. W., the Canadian Nickel Industry, University of Toronoto Press, 1955. This is the fourth in a series of studies sponsored by the Canadian Social Science Research Council.
[6] Ibid., pp. 95–97.

significant achievement in the field of nickel-conserving alloys is probably the development of the manganese stainless steel (200 series—consisting of two grades, 201 and 202), where manganese is substituted partially for nickel in the leading stainless steel alloy (300 series—grades 301 and 302). The 300 series, as classified by the American Iron and Steel Institute, is commonly referred to as "18–8" and contains about 18 percent chromium and 8 percent nickel. The 200 series contains nickel to the extent of about 4 percent and 5 percent, respectively.

The success of the new series stainless is reflected in a significant increase in production which in the first half of 1956 amounted to more than 9,000 net tons, as compared with total production of 1,904 net tons for the entire year of 1955. The wider acceptance of this product, however, has not resulted in reducing the output of the 300 series, which in 1955 amounted to an estimated 658,163 net tons as compared with total production in 1954 of 478,714 net tons. The current rate of production in the 300 series exceeds the high level established in 1955.

The position of Inco with respect to the success of this product was stated as follows:

> It is necessary for the producers of nickel to find and demonstrate the inherent advantages of nickel which will result in the abandonment of these manganese modified alloys in favour of a return to the alloys which contain the preferred, higher percentage of nickel.[7]

While the manganese stainless steel may not be as acceptable for as many uses as the comparable grades of the 300 series stainless, it is a competitive product. The manganese stainless does conserve nickel, and undoubtedly its success is due in a large measure to the shortage of nickel. The price differential in the two products, in itself, is hardly sufficient to encourage extensive abandonment of demand for the 300 series, which is only about 2 cents per pound higher than the nickel-conserving manganese stainless.

This is perhaps one of the most graphic illustrations of the conflicts that exist in the nickel market between the interest of the Government on the one hand, and the interest of the dominant producer on the other. The emphasis of governmental action in the field of strategic and critical materials in short supply, should be on conservation and the development of satisfactory substitutes.

## VIII. Diversions of Nickel From Delivery to the Stockpile

The increase in defense requirements, the appearance of the defense disparity, and the increase in civilian demand for nickel all contributed to the necessity for diverting nickel from delivery to the stockpile. Total diversions of nickel from delivery to the stockpile in 1955 accounted for more than 12 percent of total reported consumption. During 1956 the percentage was greatly increased.

A small quantity of nickel diverted to industry has been processed from scrap generated by the Government as a consumer of nickel. The greatest percentage of diversions, however, has been made from

[7] The International Nickel Company of Canada, Ltd., The Nickel Industry in Canada, Toronto, Ontario, January 25, 1956. A presentation to the Royal Commission on Canada's economic prospects.

purchase contracts with nickel producers. Details of these diversions for the period January 1955 through June 1956 are shown below in table VI.

TABLE VI.—*Stockpile diversions*

[In millions of pounds]

| | Premium price | | Market price | | |
|---|---|---|---|---|---|
| | Hanna Nickel Smelting Co. | Inco | Nicaro | Sherritt Gordon | Inco |
| 1955: | | | | | |
| 1st quarter | | | 2.5 | | 1.0 |
| 2d quarter | | | 3.7 | 0.5 | 2.0 |
| 3d quarter | | | 4.35 | | 3.0 |
| 4th quarter | 1.0 | 1.2 | 6.85 | | 3.0 |
| 1956: | | | | | |
| 1st quarter | 1.5 | 3.6 | 5.7 | | 3.0 |
| 2d quarter | 4.75 | 6.0 | 6.194 | | 3.0 |
| 18 months' total | 7.25 | 10.8 | 29.294 | 0.5 | 15.0 |

As reflected in the foregoing table the Government has authorized diversions of both market and premium price nickel. It is significant that diversions were not made by all producers. And, the authorizations evidently were not based upon the factor of the producer's proportionate contribution to the stockpile. There were, undoubtedly, circumstances which prevented the use of this factor as a basis of determination in some instances.

The Inco market price diversions, under the terms of the purchase contract, do not require the consent of the Government. A provision in this contract, executed in October 1954, gives Inco the option of diverting scheduled deliveries upon a determination by the producer that such action is necessary to meet customer requirements.[8] The greater part of the diversions under this contract in 1955 were made by Inco without prior approval by the Government. Since that time, however, the Government has indicated its consent prior to the exercise of the option.

Aside from other circumstances, it should be remembered that the Government in authorizing diversions is committed to recognition and support of the Inco civilian distribution system. The Government has notice that undisclosed quantities of nickel are being sold by some producers outside the Inco system. There is no way of assuring that the consumers purchasing this nickel will comply with the request of Inco to report it. And, a producer diverting nickel from delivery to the stockpile cannot be required to furnish Inco with a list of the customers receiving the nickel. Such information can only be required by the Government. This, in effect, is actually what has been done.

In the case of Nicaro, admittedly there is a greater degree of control because it is a Government-owned plant. The Government's selling agent for Nicaro nickel, National Lead, must secure approval from GSA for sales of Nicaro nickel to prospective customers. Reportedly, GSA receives from BDSA a record of a prospective customer's nickel

[8] This contract also provides that where diversions are made on determination of the producer, the parties shall negotiate a reschedule for delivery of the quantities diverted. Although negotiations have been conducted to this end for more than a year, apparently no agreement has been reached.

consumption. But, there is ample evidence, at least in some cases, that the Government additionally requires a reduction in the customer's allotment from Inco, to the extent of the quantity to be obtained from National Lead.

All of the ferronickel produced by Hanna is subject to control by the Government. At times the quantity of diversions authorized from this source has exceeded actual production. The ferronickel diverted by the Hanna Co. is sold to certain steel producers at a premium price. To offset the effect of this the Government has authorized Inco to divert similar quantities of premium price nickel to consumers other than those supplied by Hanna. The limitation placed on Inco to the extent of "excluding steel producers" has not applied to all of the premium price nickel diverted by Inco.

Sherritt Gordon, the only other producer permitted to divert nickel prior to July 1956, was required in an amendment to the contract to sell the nickel in 100,000-pound lots to 5 designated steel producers.

It is reported that Falconbridge received authority to divert a certain quantity of premium price nickel in the third quarter of 1956. While details of this diversion are not known, the producer was required to work out a distribution pattern with BDSA. Prior to this reported agreement, Falconbridge rejected an offer of an authorization of diversion in which the Business and Defense Services Administration (BDSA) proposed to divide the nickel among a specific number of customers, in lots ranging down to a quantity of 2,500 pounds.

Under these circumstances the position that the Government does not influence nor exercise some control, intentionally or unintentionally, over distribution and competitive forces in the nickel market is untenable and is not supported by the evidence. In effect, Inco and the Government, through BDSA, have entered into and maintain a "partnership of control" over the distribution of nickel in the civilian economy.

## IX. Defense Disparity

### A. The Role of the Department of Defense in the Priorities and Allocations Program

The disparity between estimated peacetime defense requirements and reported defense consumption has existed for almost 2 years. During that time the actual disparity has grown steadily worse. It recently reached disturbing proportions, with reported consumption exceeding estimates of requirements by more than 60 percent. Later estimates as reflected in appendix C show a considerable decrease in the disparity over the past few months. The most significant factor, however, is the fact that the disparity has continued without satisfactory explanation. Additionally, there is no explanation for the apparent inconsistency between the 7 percent increase per quarter in estimates of requirements and, concurrently, the substantial reduction in the demand for nickel in defense programs as reported by industry.

This disparity has developed under the distribution system in effect since decontrol, and under the administration of the defense order rating system. It is responsible to a great extent for the seriousness of the current shortage and has resulted in the necessity for diversions from delivery to the stockpile in continually increasing quantities.

The problem of disparity cannot be divorced from distribution and control of nickel for consumption in the domestic economy, which includes nickel for defense orders.

Department of Defense and Department of Commerce officials admit an inability under current operation of the defense rated order system to determine the exact causes of the disparity. With respect to this problem, Mr. Robert C. Lanphier, Jr., Deputy Assistant Secretary of Defense (Supply and Logistics) in a hearing before the Preparedness Investigating Subcommittee on July 3, 1956, testified:

> The Department of Defense, and my office in particular, as well as the Office of Defense Mobilization and the Department of Commerce have for some time been acutely aware of the tight situation existing in the supply of nickel. As I will shortly outline, we have jointly and individually attempted to do all we could to determine the causes, and particularly the apparent discrepancies between anticipated defense-rated requirements and the actual defense-rated demand. Without quantitative controls on nickel distribution for all rated uses, we feel it is impossible to arrive at the exact causes of shortages and discrepancies. Such controls have been avoided in the interest of saving tremendous clerical manpower both on the part of Government and industry.

At the same time the announced policy of the Department of Defense with respect to priorities and allocation operations, as contained in the Department's Priorities and Allocations Manual, includes the following objectives:

> (1) Maintain enough of the procedural structure basic to full controls to permit the rapid reactivation necessary during an emergency period; and
>
> (2) Maintain such reports between industry and Government as are necessary to assure that adequate information on supply and consumption of essential materials and products is available in event it is necessary to reinstate controls.

The extent of participation by the Department of Defense in the priorities and allocations program necessary to insure realization of the above objectives is stated as follows:

> It is essential that the Department of Defense continue active participation in the development and review of all Business and Defense Services Administration (BDSA) priorities and allocations actions in order to evaluate their effect upon military procurement programs. It is important that close analysis be given to proposed changes to determine their effect on current procurement and their effectiveness as working procedures in the event of a limited or full mobilization.

### B. POSSIBLE CAUSES OF THE DEFENSE DISPARITY: LIMITATIONS ON THE DEPARTMENT OF DEFENSE

In his testimony before the Preparedness Investigating Subcommittee on July 3, 1956, Mr. Lanphier offered a number of possible explanations for the disparity, which included:

(*a*) Inadequacies in the requirements estimating procedures, both within and without the Department of Defense, with the effect that some requirements were omitted and/or the conversion of basic requirements to primary nickel were inadequate.

(*b*) Misuse of military program identifications on rated orders for "B" products which should be otherwise identified.

(*c*) Unauthorized placement of rated orders.

(*d*) Overbuying by contractors or subcontractors, either to build protective inventories or to divert to other uses.

(*e*) Overbuying of primary nickel by mills in relation to rated orders for mill products shipped.

In regard to the first cause listed—inadequacies in the requirements estimating procedures—the Department of Defense reportedly has conducted investigations for more than a year in order to determine the accuracy of the estimating procedures. These investigations have revealed some inadequacies which account for only a small part of the total disparity.

The Department of Defense has been seriously handicapped in its efforts to test the accuracy of defense estimates by the lack of sufficient information which, to a considerable extent, may be attributed to the very nature of the estimating procedures. The job is not performed by the Department of Defense alone. For the most part military contractors use nickel, not in its primary form, but only after it has been alloyed with other materials. Consequently, the defense contractor and the Department of Defense speak in terms of alloys and other products, which contain varying quantities of nickel as well as other metals. The quantity of primary nickel to be ordered for this purpose is determined by the mill, which makes the alloys. And it is in this area that the greatest discrepancy appears.

However, the Department of Defense has been able to check with a fair degree of accuracy the estimates in the area of controlled materials. With respect to nickel the controlled materials include alloy and stainless steel. In this area the estimates of nickel have been found to be reasonably accurate. This is said to be supported by the fact that reported mill shipments of these materials have not exceeded estimated requirements. This area accounts for approximately one-third of all military requirements of nickel.

In contrast to this, the greatest increase in reported industrial (defense and civilian) consumption since 1954 has occurred in areas of stainless and engineering alloy steels. At the same time total consumption in the field of nonferrous alloys actually declined, and the total increase in high-temperature and electrical-resistance alloys was not sufficient to explain the disparity. Statistics of reported defense consumption are classified and cannot be stated; but the value of percentages of reported defense consumption has been lessened to a great extent by the inability to explain the reasons for the disparity.

Inasmuch as nickel itself, or other forms of nickel were not included in the list of controlled materials, the Department of Defense has been unable to use this method to verify accuracy of the estimating procedures for the other areas of consumption. On June 29, 1956, the Government announced the addition of "nickel alloys" to the list of controlled materials, effective in the fourth quarter of 1956. It is expected that this action will help in a large measure to explain the reasons for the disparity. However, the benefits expected to be gained will not be realized before the second quarter of 1957.

Aside from the question of the adequacy of requirements estimating procedures, the Department of Defense is only indirectly concerned with the possible causes of the defense disparity. The other causes listed involve regulations governing defense-rated orders and measures taken to enforce compliance with them. This is the primary responsibility of the Business and Defense Services Administration (BDSA). In this connection the role of the Department of Defense is one of review and analysis, with a view to making recommendations to BDSA for improvement of the system where it affects the defense effort.

The misuse of identifications in rated orders for "B" products,[9] as well as other unauthorized placement of rated orders is clearly within the province of BDSA control. Much of the defense nickel being consumed is obtained by the self-authorization of the consumer. But, BDSA reports that the number of nonwillful violations is very minor. Also, the total number of willful violations reported would account for only a small portion of the total disparity.

With respect to overbuying of nickel requirements by defense contractors the responsibility of the Department of Defense is limited largely to the extent of insuring that a contractor does not charge the excessive purchase to a defense contract. Beyond this, the duty of preventing and correcting the practice of overbuying rests with BDSA. Under current regulations, a contractor is not limited in the amount purchased, except in the area of controlled materials.

Outside of this area a defense contractor could build an unlimited inventory of material to fill defense orders. More than 2 years ago BDSA canceled an order limiting the size of inventories accumulated by defense contractors. The Department of Defense concurred in this action for the following reasons:

> (*a*) Only military and other Government programs were under the controlled material system and would be affected by inventory control.
>
> (*b*) Civilian industry already was free of inventory control and could build up as much as they wanted to—if they could get it in a free market.
>
> (*c*) Continued inventory control on military contractors would be for the benefit of the civilian economy, not the military, hence if the Department of Commerce was willing to eliminate such control we had no reason to object.

Inventory limitation is an essential part of any effective system of control. Government regulations guarantee priority for defense

[9] Under military classifications of procurement, items are designated as either "A" products or "B" products. The "A" products classification, constituting the greatest portion of total military procurement includes end items and components specifically designed for military use. The "B" products classification refers to civilian-type end-items and components common to both defense and civilian consumption. Defense estimates of nickel requirements for "B" products are formulated by the Department of Commerce.

orders. This imposes upon the Government the duty to insure that the priority does not result in unnecessary hardships on civilian consumers. Under the Inco allocation system, a civilian consumer supposedly cannot accumulate inventories. There is not enough nickel. Defense contractors should not be permitted to build excessive inventories to the detriment of civilian consumers. This should concern the Department of Defense, inasmuch as it reflects adversely upon the defense program and destroys the accuracy of defense estimates.

Perhaps the most significant factor in the defense disparity is that of mill purchases in proportion to the total amount of nickel involved in the defense rated orders. It is in this area that the greatest discrepancy appears and available information is the most incomplete. The amount of primary nickel claimed by mills for production on rated orders continually has exceeded the estimates of rated requirements.

The Department of Defense exercises no authority over the quantity of nickel received or consumed by the mills in filling defense orders. This is solely the responsibility of BDSA. Information from this source must be relied upon to compare the quantity of nickel received by defense contractors with the quantity they are estimated to need. Reported mill shipments are made available only in total quantity of all rated orders and cannot be separated on the basis of military and other programs.

A very good illustration of the difficulty resulting from insufficient information is shown in the following testimony before the subcommittee.

> Mr. LANPHIER. I feel it would be desirable to briefly outline what the Department of Defense has done, both alone and cooperatively with the Office of Defense Mobilization and Department of Commerce, to determine whether our requirements estimates had been too low.
>
> Visits have been made to the aircraft and aircraft-engine manufacturers for the purpose of examining in detail the methods used in making up bills of material for the various end items. These studies revealed some inadequacies which since have been corrected to the best of our knowledge.
>
> The principal area found was in the estimation of materials needed to manufacture engine spare parts. This process has been placed on a more rational, and a much more time-consuming basis, with the result that substantially higher requirements for spare parts now are being included in our estimates.
>
> I might state here that that is one of the most difficult areas we have, is anticipating the spare parts, take in the jet engines. The hot end of a jet engine is made out of 75 percent nickel and 25 percent chrome alloy. Obviously the hot end is the end that is going to fail and the spare parts are going to have to be ordered for it. The experience with some of the newer engines and the maintenance of them has not yet proven an accurate projection as to what spare parts are going to be required to maintain those types of engines and consequently the demand on nickel becomes very difficult to project.

Senator STENNIS. I remember some proof we had that the engine would really last longer than we expected them.

Mr. LANPHIER. Fortunately they have. They have done better than piston engines on maintenance.

Senator STENNIS. All right, go ahead.

Mr. LANPHIER. But we still have the problem. To the extent the data have been obtained by BDSA from industry, we have attempted to match up lists of orders on the mills with orders and delivery schedules placed by the contractors.

Mr. LANPHIER. This admittedly involves much time-consuming paperwork, both by Government and industry and frankly is of questionable value since the order lists have been available thus far only on an occasional and incomplete basis. This activity has, however, further enabled us to detect and correct some omissions from our requirements.

In the instances of some major engine builders, and at the request of the Department of Commerce, we obtained records of actual contractor receipts of material for the period April–June 1955, together with the corresponding order numbers and the suppliers. These were turned over to Department of Commerce in an effort to have them run back to mill schedules.

It has been our feeling that mill schedule information is of little direct value and that records of actual mill shipments to contractors are the only data directly usable as a check on requirements estimates.

In only one significant area has it been possible to do this, namely, stainless steel.

### C. FAILURE OF THE GOVERNMENT TO RESOLVE DISPARITY IS NOT DUE TO LACK OF AUTHORITY

The Government has been given broad powers to cope with this problem. It includes the authority to prevent hoarding of scarce and critical materials. The authority is contained in section 102 of title I of the Defense Production Act of 1950, as amended. As stated in section 102 of this act it provides:

> In order to prevent hoarding, no person shall accumulate (1) in excess of the reasonable demands of business, personal, or home consumption, or (2) for the purpose of resale at prices in excess of prevailing market prices, materials which have been designated by the President as scarce materials or materials the supply of which would be threatened by such accumulation. The President shall order published in the Federal Register, and in such other manner as he may deem appropriate, every designation of materials the accumulation of which is unlawful and any withdrawal of such designation. In making such designations the President may prescribe such conditions with respect to the accumulation of materials in excess of the reasonable demands of business, personal, or home consumption as he deems necessary to carry out the objectives of this Act. This section shall not

be construed to limit the authority contained in sections 101 and 704 of this Act.

The Government has avoided this action "in the interest of saving tremendous clerical manpower both on the part of Government and industry." Yet this disparity, involving substantial quantities of nickel, has been responsible in a large measure for diversions of nickel from delivery to the stockpile, with the effect of delaying stockpile completion. If all or most of the nickel involved in this disparity is actually being consumed in the defense program, then the requirements estimating procedures are inadequate and estimates of peacetime as well as mobilization defense requirements are seriously understated. Moreover, the stockpile objective will be greatly inadequate. If, on the other hand, large quantities of nickel involved in the disparity are actually being consumed for other purposes, it is bound to result in serious hardship and dislocation in the civilian economy. For these reasons a solution to the problem is imperative. If the problem continues long without solution, it may well involve considerably more than tremendous clerical manpower.

## X. Summary and Conclusions

There is a current serious shortage of nickel in spite of a tremendous increase of total available supply. The current shortage is attributed by the Government to the combination of an unanticipated rise in defense requirements and an expansion in the civilian economy with nickel being demanded for an increasing number of uses. The most immediate response seems to be that the basic solution is to provide more nickel. This solution will take much time, and apparently more attention and effort than the Government agencies are currently devoting to it. Moreover, it overlooks the need for a solution to some of the more immediate and serious problems, which may greatly alter future requirements and the extent of required expansion.

These problems include: (1) the serious and increasing disparity between estimates of defense requirements and actual defense consumption; (2) the failure of the current defense priorities and allocations program to provide sufficient and adequate information to gage the accuracy of current and future estimates of requirements; and (3) reported inequities and hardships arising out of the current civilian distribution system. These problems are all interrelated to the extent that they involve the unknown or unexplained disposition of a considerable quantity of nickel that is actually being charged to the defense program. The extent of required future expansion, the size of the nickel stockpile objective, and the degree of controls that will be necessary in the event of mobilization will depend in a large measure upon a satisfactory solution to these problems.

Undoubtedly defense requirements of nickel have increased greatly, and recent developments strongly indicate a continued upward trend in defense demand. The same holds true for the civilian demand for nickel. The two areas of consumption have long been in conflict. During the Korean emergency the problem was met by enforced conservation and complete controls over defense and civilian distribution. The period following the emergency was marked by relaxed control of defense distribution and abandonment of Government

controls over civilian distribution. However, through authority over nickel committed to the stockpile and that consumed in defense orders, the Government retained control of a considerable quantity. More than 90 percent of the remainder was subject to the control of Inco. The Government accepted Inco's civilian distribution system.

Then the shortage developed and became more acute because of the reported defense consumption. This, in turn, created the demand for diversions from delivery to the stockpile and resulted largely in a "partnership of control" by the Government and Inco over civilian distribution.

Hence the Government continues to grapple with the problem of control. Nickel remains one of the most critical and strategic defense materials. The increase in available supply and the expansion of productive facilities have been accompanied by the emergence of additional nickel producers. But the nickel market in the United States is still far from being a free market. The role of the Government should be in the direction of insuring that it becomes a free market, in which the smaller producers are permitted to compete for their proportionate share. At the very least, Government policies and actions should not prevent them from achieving this objective. Combined defense requirements (the stockpile and defense orders) over the past 3 years have contributed significantly to inordinate hardships and dislocations in the civilian economy that cannot be ignored nor treated lightly. The most satisfactory solutions will not be the easiest.

Recent announcements of proposed construction of additional nickel producing and refining facilities indicate that by 1959 or 1960 the supply of nickel will be materially increased. The new production will be realized primarily through the program announced by Inco in December 1956 to expand production by approximately 105 million pounds annually, and the expansion project announced by GSA on March 11, 1957, under which Freeport Sulphur Co. through a subsidiary, will construct facilities in Cuba and the United States with planned nickel production of 50 million pounds annually.

While these projects eventually will alleviate the shortage and may even result in the creation of a surplus of supply, they will not provide satisfactory answers to the more immediate problems involved in the defense disparity and adequacy of the stockpile objective.

## XI. Recommendations

The subcommittee recommends:

1. That the Office of Defense Mobilization deal immediately and vigorously with the problem of the defense disparity without waiting for a test of the effectiveness of the action of placing "nickel alloys" under control; that all the possible causes for the disparity be investigated fully through the joint effort of all Government agencies affected; and that the need for comprehensive quantitative controls be immediately reviewed to insure the success of such an investigation, and to prevent the excessive accumulation of inventories of nickel for any defense purpose, or under the guise of being earmarked or needed for the defense program.

2. That the Office of Defense Mobilization order a thorough review of the defense order rating system in its entirety with specific attention directed to the adequacy of current regulations and the effectiveness of the compliance and enforcement measures.

3. That the Department of Defense be given every possible assistance by the Office of Defense Mobilization and the Business and Defense Services Administration in formulating more adequate requirements estimating procedures.

4. That the Department of Defense report periodically to the Preparedness Investigating Subcommittee the progress made in resolving the disparity problem, and submit a complete report to the subcommittee when the causes of the disparity have been fully determined.

5. That the Department of Defense continue an active conservation program, stressing scrap utilization, the use of alternates and substitutes for nickel within the limits of satisfactory standards of performance, and such reductions in nickel specifications in military items as can safely be made.

6. That the Office of Defense Mobilization review the nickel stockpile objective and the nickel expansion program after the estimates of peacetime and mobilization defense requirements are redetermined with reasonable accuracy.

7. That the Office of Defense Mobilization review the current nickel distribution pattern in the civilian economy to insure that the system in which the Government plays a role does not operate to the detriment of any producer.

8. That the General Services Administration expedite Nicaro expansion as rapidly as possible and strive to increase the plant's efficiency through extraction of the other valuable elements in the Cuban ores.

9. That the Office of Defense Mobilization and General Services Administration give new consideration to the question whether or not construction of additional producing and refining facilities should be expedited.

# APPENDIXES

## Appendix A

### Federal Laws and Regulations Relating to Stockpile and Expansion Programs

Currently, the stockpile and expansion programs are administered under the authority of a number of congressional acts as amended. The acts which are of primary importance include: (1) Defense Production Act of 1950, as amended; (2) Strategic and Critical Materials Stockpiling Act, as amended; (3) Agricultural Trade Development and Assistance Act of 1954, as amended; and (4) Internal Revenue Code of 1954.

All functions of stockpiling and expansion of industrial facilities as contained in these acts are under the supervision and control of the present Office of Defense Mobilization, Executive Office of the President. The Office of Defense Mobilization was created, effective June 12, 1953, by Reorganization Plan No. 3, and Executive Order No. 10480. This action abolished the former Office of Defense Mobilization, the National Security Resources Board, and the Munitions Board. At the same time the mobilization planning functions of the National Security Resources Board, the stockpiling functions performed by the Munitions Board of the Department of Defense, and the defense production and related functions under the authority of the former Office of Defense Mobilization, were all transferred to the newly created Office of Defense Mobilization.

Other significant organizational changes include: (1) The Business and Defense Services Administration: This agency was established on October 1, 1953, by Department of Commerce Order No. 5152, which concurrently abolished the National Production Authority and transferred all functions to the Business and Defense Services Administration. (2) The Defense Materials Procurement Agency, established August 28, 1951, by Executive Order No. 10281, was abolished on August 14, 1953, pursuant to Executive Order No. 10480, and all functions were transferred to the Administrator, General Services Administration. These functions were subsequently placed under the authority of the Administrator, Emergency Procurement Service, General Services Administration. (3) On November 12, 1954, by Defense Mobilization Order 1–13, responsibility for recommending and developing expansion programs was assigned to the Department of Interior. Previous to that time the Department of Interior had only the function of exploring domestic sources of minerals and metals, which was carried out by the Defense Materials Exploration Administration. On January 6, 1955, the Office of Minerals Mobilization was established in the Office of the Secretary of Interior. This office is responsible for continuous evaluation of the preparedness of the

United States in mineral raw materials and solid fuels and for making recommendations to the Office of Defense Mobilization regarding measures to maintain adequate mobilization base levels, establishment of modification and expansion goals, use of financial aids and incentives, objectives of stockpiling programs, evaluation of proposed foreign minerals exploration and development programs, etc. These functions previously had been performed largely by the General Services Administration. (4) On August 20, 1954, by Department of Defense Directive 4405.6, the Assistant Secretary of Defense (Supply and Logistics) was assigned responsibility for Department of Defense participation in the priorities and allocations program in accordance with orders and regulations of the Business and Defense Services Administration.

## APPENDIX B

Please execute this form in quadruplicate and mail as follows: Original and one copy (canary) should be sent to the International Nickel Co., Inc., 67 Wall Street, New York 5, N. Y., attention of Nickel Sales Department *to arrive on or before the 10th of the month preceding that in which the nickel is required for processing.* If buyer normally receives supplies from a distributor of INCO nickel products, the pink copy should be sent to that distributor. Buyer should keep green copy for his own files.

### REQUEST FOR INCO NICKEL SUPPLY

Required for initial processing in the month of _____ only.

Submitted to The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.

By _____ _____
Company Date

_____ _____
Address Signature and Title

| DMS [1] rated orders | Pounds of nickel contained in— | | Pounds primary nickel required | DMS [1] rated orders | Pounds of nickel contained in— | | Pounds primary nickel required |
|---|---|---|---|---|---|---|---|
| | Melting weight | Shipping weight | | | Melting weight | Shipping weight | |
| A–1 | | | | E–1 | | | |
| A–2 | | | | E–2 | | | |
| A–3 | | | | E–3 | | | |
| A–4 | | | | E–4 | | | |
| A–5 | | | | E–5 | | | |
| A–6 | | | | Other DMS [1] ratings within A–E. | | | |
| A–7 | | | | | | | |
| B–5 | | | | | | | |
| C–2 | | | | | | | |
| C–3 | | | | | | | |
| C–5 | | | | | | | |
| C–8 | | | | | | | |
| Other A, B, or C ratings. | | | | | | | |

[1] Defense materials system.

| | | | |
|---|---|---|---|
| Total requirements for defense materials system rated orders | | | |
| Primary nickel requirements for nonrated orders | | | |
| Total all primary nickel requirements | | | |
| Deduct nickel to be obtained from other sources | | | |
| Balance INCO primary nickel requested | | | |

## APPENDIX C

ASSISTANT SECRETARY OF DEFENSE,
SUPPLY AND LOGISTICS,
*Washington, D. C., January 14, 1957.*

Hon. LYNDON JOHNSON,
*Chairman, Preparedness Investigating Subcommittee, Senate Committee on Armed Services, United States Senate.*

DEAR SENATOR JOHNSON: Following a conference on January 10 with counsel for your subcommittee, my staff has reviewed the proposed 10th report of the subcommittee (nickel) and we respectfully submit the following comments.

1. On page 25, first paragraph, it is stated that reported defense consumption exceeds estimated defense requirements by more than 60 percent. We have been able to make a reasonably matching comparison of requirements and demand only in the direct Department of Defense requirements area and in this area reported to your subcommittee at the July 3, 1956, hearing that the apparent demand for the second quarter calendar year 1956 had reached some 16,200,000 pounds against an estimated requirement of 10,650,000 pounds, which would be an excess demand of 53 percent. This second quarter 1956 comparison was based on 2 months' firm demand data with the third month estimated. Later firm data reduce the second quarter 1956 indicated disparity to 46 percent. More important, however, is the fact that the demand against DOD program symbols, as reported by industry to BDSA, has dropped substantially in the third and fourth quarters 1956, while the DOD requirements estimate has continued to rise at about 7 percent per quarter, with the overall result that the disparity for the fourth quarter 1956 now appears to be less than 5 percent. Admittedly, these data on requirements and demand are not truly comparable—some inconsistencies in the areas covered may exist. However, the relative magnitude of the apparent disparity as between second quarter 1956 and fourth quarter 1956 is, we feel, truly indicated since all data are on a consistent basis from quarter to quarter.

Our point here is that perhaps the peak disparity (whether 46, 53, or 60 percent) should be dated as having occurred in the second quarter 1956 so that the reader of this report following issuance in early 1957 would not gain the impression that such is the present situation.

2. On page 26, 12th line from the bottom, we feel it would be more accurate to delete the words "nickel for" because mill shipments are of "controlled materials" as such and are not of "nickel for controlled materials."

3. We are of the opinion that recommendation No. 4 might more appropriately be directed to the Office of Defense Mobilization or possibly the Department of Commerce becuase the Department of Defense does not have the authority to collect and compile the industry data necessary to a really complete study of this problem. We can, of course, report on any areas within our competence and authority, but would have to lean heavily on other agencies to attempt a complete coverage. Please understand this suggestion is not made in an effort to avoid a task; rather it is offered in the interest of most expeditiously resolving this question.

I would like to take this opportunity to thank the subcommittee and its staff for a clear and objective report on a complex subject and to express the appreciation of myself and my staff for the many courtesies shown us during the course of these investigations. We particularly appreciate the opportunity to read and comment upon this report prior to its publication and extend the above comments in the same spirit of cooperation.

Sincerely yours,

R. C. LANPHIER, Jr.,
*Deputy Assistant Secretary of Defense (Supply and Logistics).*

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## APPENDIX D

### EXCERPTS FROM COMMENTS ON THE NICKEL REPORT FROM COUNSEL FOR ODM TO STAFF MEMBERS OF THE SUBCOMMITTEE

Page 5, paragraph 3:

The first sentence states in part, "* * * for more than a year the Department of Defense, Department of Commerce, and the Office of Defense Mobilization have been unable to explain satisfactorily the reasons for the significant and increasing discrepancy between estimates of and actual peacetime defense consumption."

As of 6 to 9 months ago, the above quotation would have been accurate. However, since that time investigations by the various relevant agencies have shown that the discrepancy between estimated requirements and actual "take" by the Department of Defense for the most part results from the use of out-of-date factors in estimating requirements. This situation has since been remedied.

Page 14, table IV, headed "U. S. Exports of Nickel":

This table is misleading in that the total poundage involved is the gross weight of nickel containing materials. It does not reflect nickel recovered from these exports and returned to this country nor does it separate nickel imported into this country for toll operations only and subsequently exported.

Page 15, paragraph 3:

The committee is advised that the statement, "* * * increase in reported defense consumption of nickel presages an upward revision of the stockpile objective" does not accord with the conclusions that may be reached as a result of current studies in this area. As of 6 to 9 months ago, prior to the discovery that improper factors were being used in estimating defense requirements, it was the general feeling that a review of mobilization requirements might indicate the need for further preparedness measures in regard to nickel. However, as of this time, it does not appear that such actions will be necessary.

Page 24, paragraph 2:

The Government is not "committed" to recognition and support of the Inco civilian distribution system. This distribution system has been devised by Inco on its own responsibility. The Government's only interest in the matter is to alleviate the shortage as much as possible by diversions from the stockpile.

Page 24, paragraph 4:

The distribution of ferronickel produced by Hanna is not subject to "control by the Government." All ferronickel produced by this

company is subject to the contract with the Government. When ferronickel was first diverted, BDSA gave guidance to the company with regard to its sale of ferronickel since the firm had no experience in selling the material. In subsequent diversions the company was requested only to conduct its sale of ferronickel in a fair and equitable manner. It should be noted that this form of nickel may be used efficiently only by the steel industry.

Page 27, paragraph 4, last sentence, and paragraph 5, first sentence:

We have been informed by counsel of the BDSA, Department of Commerce, that defense contractors cannot build an unlimited inventory of materials to fill defense orders without being in violation of sections 4 (c) and 8 (f) of BDSA Regulation No. 2.

○